

# Clinical Trial Protocol

## Iranian Registry of Clinical Trials

23 Jun 2026

### Comparison of the effects of Muscle energy technique vs. Static stretch on flexibility of hamstring muscle, pain and function in sport players with patellofemoral pain syndrome

#### Protocol summary

##### Summary

This study was planned to evaluate the effect of two manual techniques on flexibility of hamstring muscles, pain and function in athletes. Athletes with patellofemoral pain syndrome between age of 18-30 and positive active patellar grind test, participate in this study. Exclusion criteria is contain lower extremity complication such as fracture and dislocation at least during 6 months. 66 participants are recruited (22 in each group). First intervention group receive static stretch and second intervention group receive muscle energy. Third group are considered as control group. Intervention is done 5 days per week for 2 weeks. Flexibility, pain and function were measured before and after the intervention.

#### General information

##### Acronym

##### IRCT registration information

IRCT registration number: **IRCT201608022391N23**

Registration date: **2016-08-17, 1395/05/27**

Registration timing: **registered\_while\_recruiting**

Last update:

Update count: **0**

##### Registration date

2016-08-17, 1395/05/27

##### Registrant information

###### Name

Zahra Rojhani Shirazi

###### Name of organization / entity

Shiraz University of Medical Sciences, School of Rehabilitation Sciences

###### Country

Iran (Islamic Republic of)

###### Phone

+98 71 1627 1552

###### Email address

rojhaniz@sums.ac.ir

###### Recruitment status

**Recruitment complete**

###### Funding source

Shiraz University of Medical Sciences

###### Expected recruitment start date

2016-08-05, 1395/05/15

###### Expected recruitment end date

2016-11-05, 1395/08/15

###### Actual recruitment start date

empty

###### Actual recruitment end date

empty

###### Trial completion date

empty

###### Scientific title

Comparison of the effects of Muscle energy technique vs. Static stretch on flexibility of hamstring muscle, pain and function in sport players with patellofemoral pain syndrome

###### Public title

comparison of two therapeutic techniques in flexibility, pain and performance of athletes

###### Purpose

Treatment

###### Inclusion/Exclusion criteria

Inclusion criteria: Professional athletes between 18-30 years old; unilateral anterior knee pain during two of these activities climbing stairs, squatting and long sitting; positive active patellar grind test; starting of pain feeling without history of trauma; pain during more than 6 month. Exclusion criteria: lower extremity complications such as fracture and dislocation at least during 6 months ago ; any history of surgical operations in muscles, bones

and joints of lower extremity ; knee joint flexion contracture.

#### **Age**

From **18 years** old to **30 years** old

#### **Gender**

Male

#### **Phase**

N/A

#### **Groups that have been masked**

*No information*

#### **Sample size**

Target sample size: **66**

#### **Randomization (investigator's opinion)**

Randomized

#### **Randomization description**

#### **Blinding (investigator's opinion)**

Single blinded

#### **Blinding description**

#### **Placebo**

Not used

#### **Assignment**

Parallel

#### **Other design features**

### **Secondary Ids**

empty

### **Ethics committees**

#### **1**

##### **Ethics committee**

###### **Name of ethics committee**

Shiraz University Of Medical Sciences

###### **Street address**

Chamran Boulevard, Street Abyverdy, School of Rehabilitation Sciences

###### **City**

Shiraz

###### **Postal code**

###### **Approval date**

2015-07-18, 1394/04/27

###### **Ethics committee reference number**

IR.SUMS.REC.1395.73

### **Health conditions studied**

#### **1**

##### **Description of health condition studied**

Patellofemoral Pain Syndrome

##### **ICD-10 code**

M22.4

##### **ICD-10 code description**

Chondromalacia Patellae

### **Primary outcomes**

#### **1**

##### **Description**

Hamstring tightness

##### **Timepoint**

After and before intervention

##### **Method of measurement**

Active Extension Test

#### **2**

##### **Description**

Function

##### **Timepoint**

After and before intervention

##### **Method of measurement**

Kujala Test

#### **3**

##### **Description**

Pain

##### **Timepoint**

After and before intervention

##### **Method of measurement**

NRS

### **Secondary outcomes**

empty

### **Intervention groups**

#### **1**

##### **Description**

Intervention group 1,MET: the case is in supine position.hip joint is held in 90 degrees of flexion by sling.therapist straighten knee joint as tolerable, next he presses against the therapist shoulder for 7 to 10 seconds, then relaxes for 5 second and at this time therapist stretches hamstring muscle to the next rang as tolerable. this stretch is held for 30 seconds. this process is repeated 5 times.

##### **Category**

Other

#### **2**

##### **Description**

Control group: pain, function and flexibility are measured without intervention

##### **Category**

N/A

#### **3**

##### **Description**

Intervention group 2, static stretch: the case is in supine position.the case puts his leg on the therapist shoulder. this process is repeated 5 times. the therapist stretches the hamstring muscle as tolerable for 30 seconds, then he returns the led to the rest position for 30 seconds. this

process is repeated 5 times.

**Category**

Other

**Recruitment centers****1****Recruitment center****Name of recruitment center**

Sport Clubs

**Full name of responsible person**

Zahra Rojhani Shirazi

**Street address**

Shiraz, Chamran Boulevard, Street Abyverdy, School of Rehabilitation Sciences

**City**

Shiraz

**Sponsors / Funding sources****1****Sponsor****Name of organization / entity**

Shiraz University of Medical Sciences

**Full name of responsible person**

Gholamreza Hatam

**Street address**

Chamran Boulevard, Street Abyverdy, School of Rehabilitation Sciences

**City**

Shiraz

**Grant name****Grant code / Reference number****Is the source of funding the same sponsor organization/entity?**

Yes

**Title of funding source**

Shiraz University of Medical Sciences

**Proportion provided by this source**

100

**Public or private sector**

*empty*

**Domestic or foreign origin**

*empty*

**Category of foreign source of funding**

*empty*

**Country of origin****Type of organization providing the funding**

*empty*

**Person responsible for general inquiries****Contact****Name of organization / entity**

Shiraz University Of Medical Sciences

**Full name of responsible person**

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**Position**

PHD

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**Fax****Email****Web page address****Sharing plan****Deidentified Individual Participant Data Set (IPD)**

*empty*

**Study Protocol**

*empty*

**Statistical Analysis Plan**

*empty*

**Informed Consent Form**

*empty*

**Clinical Study Report**

*empty*

**Analytic Code**

*empty*

**Data Dictionary**

*empty*